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United States Department of Agriculture,

BUREAU OF PLANT INDUSTRY,

Alkali and Drought Resistant Plant Breeding Investigations.

Dry Land Agriculture,

COTTON CULTURE IN THE SOUTHWESTERN UNITED STATES.

In order to meet the need for a staple money crop suited to conditions in the irrigated sections of the Southwest, the Department of Agriculture has been experimenting in that region for several years with a number of types of cotton. It has been found that this crop when properly cultivated gives returns that should be profitable in competition with any of the ordinary field crops; furthermore, it thrives best with a relatively small quantity of water and is rather more resistant to alkali than are other field crops.

The experimental work so far done indicates strongly that the Egyptian type of cotton is the most promising for culture in the Southwest. One variety of this type yielded at Yuma in 1907 at the rate of 990 pounds of lint to the acre, or practically the equivalent of two bales of the American standard. Samples of this cotton have been submitted to a number of buyers and manufacturers of Egyptian cotton, and these men have classed it as equal to the best grades of imported Egyptian and on the basis of the 1907 market worth 23 to 25 cents a pound. The average price of all grades of Egyptian cotton at Boston in 1907 was 21.9 cents a pound.

Although producing by far the larger part of the world's supply of cotton, the United States annually imports large quantities from Egypt. The average annual imports for the last ten years have amounted to over 62,000,000 pounds. This type of cotton is at present not grown commercially in the United States. It is higher priced than any American-grown cotton with the exception of the Sea Island type. The average price of all grades of Egyptian cotton at Boston for the last ten years has been 15.3 cents per pound, as compared with 9.7 cents for American Middling Upland.

In view of these facts it seems probable that Egyptian cotton can be grown profitably in the Southwest and that it can find a ready market in New England.

The boll weevil, which has caused such great damage in the cotton fields of Texas and Louisiana, has not yet invaded Arizona and southern California. While it is not generally believed that this pest could thrive and cause much damage in that hot, rainless region, it would be hazardous to risk its introduction. For this reason it is very important that no cotton seed be brought into that section either from or through the boll-weevil-infested region without a most rigid disinfection.

The experimental work of the Department of Agriculture has shown that acclimatization is necessary for success with Egyptian cotton in the Southwest. Newly introduced Egyptian seed has not produced profitable yields of cotton, while the same variety after several years' selection and acclimatization has become adapted to local conditions and has given excellent yields. This fact should be kept in mind in connection with future attempts to grow this crop, and unless thoroughly acclimatized seed can be secured it would be unwise to plant any considerable quantity.

Cotton must be picked by hand, and this requires a relatively large amount of labor. For this reason it is recommended that those intending to plant cotton should begin on a small scale unless certain of an adequate labor supply.

Cotton must be ginned and baled before it can be marketed. The processes require rather expensive machinery, which should be located within easy hauling distance of the cotton fields. It is desirable, therefore, that enough cotton be grown in a community to justify the installation of a gin and press before any attempt at commercial production is undertaken.

Cotton should be planted on a loam soil rather than on heavy clay, because of the greater ease of cultivation.

For the information of those not familiar with cotton culture the following suggestions are made: The seed bed should be in excellent condition before planting, as the cotton seedlings are delicate and will not push up through a hard crust or stand much abuse at the time of the first cultivation. A few days before planting the ground should be irrigated by flooding and harrowed thoroughly as soon after irrigating as possible. The best yields at Yuma in 1907 were obtained by planting on March 28, but it is believed that better yields could have been obtained had the planting been done earlier, or as soon as possible after the danger of frost. The cotton should be planted on level land rather than on ridges, and in rows about 6 feet apart. It can be planted in hills or drilled in with a cotton planter, or even with a drill corn planter if the latter is carefully operated. If planted with a drill, the seed should be dropped about 6 inches apart, and later thinned to one plant every 3 feet in the row; if planted by hand 4 or 5 seeds should be dropped in a hill. The seed should not be planted deeper than 2 inches. It should be placed in moist soil and the ground firmed down over it to secure immediate and uniform germination. Do not irrigate after planting and before the cotton is well up. One irrigation before planting and about three irrigations after planting should be enough to mature a crop on any but the very light soils. On heavier soils two irrigations after planting should be sufficient. Care should be used not to irrigate the cotton too much, and it should be thoroughly cultivated after each irrigation, so that the surface soil is always loose

and fine. The cotton must be thinned with a hand hoe when the plants are about 6 inches high. If the ground is free from weeds, a thorough hoeing at the time of thinning should be sufficient. If the ground is weedy, however, more thorough tillage must be given. The last irrigation should be given not later than September 1, as irrigation later in the season retards the ripening of the crop.

The first picking of cotton can be made about September 15, and the crop gives four or five pickings during the autumn. Picking costs from \$1.50 to \$2.25 per 100 pounds of seed cotton, according to the price of labor.

While there is every reason to believe that Egyptian cotton will become a valuable crop in the Southwest, it is urged that farmers begin in a small way and learn how to produce and market the crop before investing much time or money in it. Those desiring to secure seed for experimental planting should send requests to W. A. Peterson, Yuma, Ariz.

T. H. KEARNEY.

Approved :

B. T. GALLOWAY,
Chief of Bureau.

WASHINGTON, D. C., *March 24, 1908.*

